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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,622	02/27/2002	Tomoki Ueyama	SPO-0207	1570

7590

09/30/2004

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EXAMINER

AMINZAY, SHAIMA Q

ART UNIT PAPER NUMBER

2684

DATE MAILED: 09/30/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/069,622

Applicant(s)

UEYAMA ET AL.

Examiner

Shaima Q. Aminzay

Art Unit

2684

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/2-27-2002</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

◆ The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claim 2 is rejected under 35 U.S.C. 102(b) as being anticipated by Emmert U. S. Patent 6352434.

Regarding claim 2, Emmert teaches a flexible printed circuit board comprising first and second connection portions (see for example, Figures 16 A and 16 B, column 9, lines 28-33, column 11, lines 15-19, the flexible printed circuit board first portion (2724) and second portion (2726)), and the contacts are exposed and first and second path portions where conductor patterns are arranged that connect the contacts of the first and second connection portions together (see for example, Figures 16 A and 16 B, column 9, lines 46-52, column 11, lines 10-19, the contacts of the first portion (2724) and the second portion (2726) are exposed and arranged that to be connected together), and wherein the first and second path portions are formed so as to have substantially symmetrical shapes with each other about a predetermined straight line (see for example, Figures 16 A and 16 B, column 9, lines 28-30, and lines 37-41, the first and second portions

having substantially symmetrical shapes with each other about a straight line such as length 2706), and the flexible printed circuit board is folded up along the straight line (see for example, Figure 15, column 8, lines 47-50, the flexible printed circuit board is folded about horizontal straight line as can be viewed in figure 15).

Claim Rejections - 35 USC § 103

◆ The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 3, are rejected under 35 U.S.C.103(a) as being unpatentable over Emmert U. S. Patent 6352434.

Regarding claim 1, Emmert teaches a flexible printed circuit board comprising first and second insulating sheets (see for example, Figures 16 A and 16 B, column 9, lines 28-33, a flexible printed circuit board that includes substrate (2702) with dielectric (non-conductive) property forms the body or insulating covering, and column 11, lines 10-13, the first (2724) and the second (2726)

sides of the flexible circuit includes non-conductive substrate), and a conductor pattern formed between the first and second insulating sheets (see for example, Figures 16 A and 16 B, column 9, lines 37-41, column 11, lines 10-13, the conductor pattern formed between the non-conductive substrate, view the first (2724) and the second (2726) sides of the flexible circuit), and the flexible printed circuit board is folded up with the second insulating sheet outside so that the conductor pattern is enclosed inside the conductor (see for example, Figures 11, and 12, the flexible circuit (316) conductive pattern is enclosed with the non-conductive cover outside).

However, Emmert does not specifically teach shielding the circuit.

The examiner takes "Official Noticed" the fact that it is very well known in the art that connecting the tow functional RF signal via a flexible circuit must be shielded to prevent entering noise to the circuit (see for example, "The Circuit Designer's Companion" by Tim Williams (ISBN: 075061756-x), section 1.1.11, connecting two circuits with radio frequency energy needs to be shield in order to eliminate noise, and section 8.5 for more detail).

It would have been obvious to one of ordinary skill in the art at the time invention was made to use shielding with Emmert's flexible circuit (see for example, column 9, line 29) to provide a flexible circuit with improved conductive routing and having small number of traces (Emmert, column 2, lines 2-11), and to be use with portable electronic devices without a significant increase in size and weight (Emmert, see for example, column 1, lines 7-15).

Regarding claim 3, Emmert teaches a folding-type cellular telephone terminal (Figures 1-2) comprising: first and second body casings (Figure 1-2, column 2, lines 67-68 continued to column 3, lines 1-3, and lines 15-17, the first casing (108) is the bottom housing and the second body casing (100) is the top housing); a hinge portion that pivotably couples the first and second body casings together (see for example, Figures 11-12, column 7, lines 64-67 continued to column 8, lines 1-11, and Figures 1 and 2 shows the hinge pivotably coupling the first and second body casings together), and a flexible printed circuit board comprising first and second insulating sheets (see for example, Figures 16 A and 16 B, column 9, lines 28-33, a flexible printed circuit board that includes substrate (2702) with dielectric (non-conductive) property forms the body or insulating covering, and column 11, lines 10-13, the first (2724) and the second (2726) sides of the flexible circuit includes non-conductive substrate), and a conductor pattern formed between the first and second insulating sheets (see for example, Figures 16 A and 16 B, column 9, lines 37-41, column 11, lines 10-13, the conductor pattern formed between the non-conductive substrate, view the first (2724) and the second (2726) sides of the flexible circuit), and the flexible printed circuit board being arranged so as to bridge between the first and second body casings (see for example, column 8, lines 14-19, the flexible printed circuit board coupling (bridging) the first and second body housings (casings)), and the flexible printed circuit board is folded up with the second insulating sheet outside

so that the conductor pattern is enclosed inside the conductor (see for example, Figures 11, and 12, the flexible circuit (316) conductive pattern is enclosed with the non-conductive cover outside).

However, Emmert does not specifically teach shielding the circuit.

The examiner takes "Official Noticed" the fact that it is very well known in the art that connecting the tow functional RF signal via a flexible circuit must be shielded to prevent entering noise to the circuit (see for example, "The Circuit Designer's Companion" by Tim Williams (ISBN: 075061756-x), section 1.1.11, connecting two circuits with radio frequency energy needs to be shield in order to eliminate noise, and section 8.5 for more detail).

It would have been obvious to one of ordinary skill in the art at the time invention was made to use shielding with Emmert's flexible circuit (see for example, column 9, line 29) to provide a flexible circuit with improved conductive routing and having small number of traces (Emmert, column 2, lines 2-11), and to be use with portable electronic devices without a significant increase in size and weight (Emmert, see for example, column 1, lines 7-15).

3. Claims 4, and 5 are rejected under 35 U.S.C.103(a) as being unpatentable over Emmert U. S. Patent 6352434 in view of Inoue U. S. Patent 5799079.

Regarding claim 4, Emmert teaches a folding-type cellular telephone terminal (Figures 1-2) comprising: first and second body casings (Figure 1-2, column 2, lines 67-68 continued to column 3, lines 1-3, and lines 15-17, the first casing (108) is the bottom housing and the second body casing (100) is the top housing), and a hinge portion that pivotably couples the first and second body casings together (see for example, Figures 11-12, column 7, lines 64-67 continued to column 8, lines 1-11, and Figures 1 and 2 shows the hinge pivotably coupling the first and second body casings together), and a flexible printed circuit board comprising first and second connection portions where contacts are exposed and first and second path portions where conductor patterns are arranged that connect the contacts of the first and second connection portions together (see for example, Figures 16 A and 16 B, column 9, lines 46-52, column 11, lines 10-19, the contacts of the first portion (2724) and the second portion (2726) are exposed and arranged that to be connected together), and the first and second path portions being formed so as to have substantially symmetrical shapes with each other about a predetermined straight line (see for example, Figures 16 A and 16 B, column 9, lines 28-30, and lines 37-41, the first and second portions having substantially symmetrical shapes with each other about a straight line such as length 2706), the flexible printed circuit board being folded

up along the straight line (see for example, Figure 15, column 8, lines 47-50, the flexible printed circuit board is folded about horizontal straight line as can be viewed in figure 15), and an overlapping portion of the flexible printed circuit board which is formed as a result of the first and second portions of the flexible printed circuit board (see for example, Figures 11-12 shows the overlapped flexible printing circuit board

However Emmert does not specifically teach the helical shape in the hinge portion.

Inoue teaches the helical shape in the hinge portion (see for example, column 6, lines 53-55, and lines 62-64, the helical shape is used in the hinge portion).

It would have been obvious to one of ordinary skill in the art at the time invention was made to combine Inoue's teaching of the helical shape in the hinge portion with Emmert's flexible circuit (see for example, column 9, line 29) to provide "an opening and closing mechanism for an electronic device which can prevent a poor electrical connection at an opening and closing section", and "can be manufactured at a reduced cost", and to provide "an opening and closing mechanism which can be efficiently assembled as well as having the foregoing advantages" (Inoue, column 1, lines 54-64).

Regarding claim 5, Emmert and Inoue teach claim 4, and further, Emmert teaches the straight line along which the flexible printed circuit board is arranged outside the hinge portion (see for example, Figures 1-2, column 3, lines 12-17,

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and lines 22-24, the hinge section is located between the first and second portions). Emmert does not specifically teach a displacement means. However, Emmert teaches the use of adhesive backing (see for example, column 3, lines 30-31), and that is "inherent" for the adhesive material to prevent displacement.

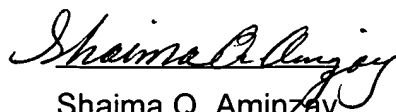
Conclusion

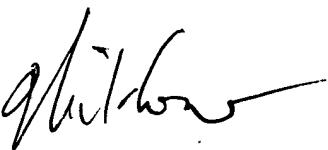
4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892 form.

Inquiry

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shaima Q. Aminzay whose telephone number is 703-305-8723. The examiner can normally be reached on 7:00 AM -5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 703-308-7745. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Shaima Q. Aminzay
(Examiner)


NICK CORSARO
PRIMARY EXAMINER

Nay Maung
(SPE)
Art Unit 2684

September 23, 2004